From the Editorial Board

Usp. Fiz. Nauk 151, 309 (February 1987)

The article "Fluctuation-dissipation relations. Role of the finiteness of the correlation time. Quantum generalization of Nyquist's formula" by Yu. L. Klimontovich was submitted for publication in Uspekhi Fizicheskikh Nauk. In this article it is asserted that the well-known Callen-Welton formula holds in the quantum region only under conditions of weak dissipation, while the quantum generalization of Nyquist's formula in the general case differs substantially from the generally accepted derivation in the literature. The reviewers to whom we sent the article did not agree with Yu. L. Klimontovich's conclusions. Nevertheless, discussions (in particular, at seminars) indicate that the questions Yu. L. Klimontovich addresses are by no means clear to everyone. Moreover, Yu. L. Klimontovich is not only a wellknown specialist in statistical physics, but he is also the author of the book "Statistical Physics" (Nauka, Moscow (1985)), a textbook for physics students. In this book

(Chapter 11, Sec. 5) the quantum generalization of Nyquist's formula is also derived in an unusual manner.

In view of this situation we thought it would be appropriate to publish Yu. L. Klimontovich's article simultaneously with the article by V. L. Ginzburg and L. P. Pitaevskiĭ, in which Yu. L. Klimontovich's article is criticized from the standpoint of the position adopted in the literature. In addition, this issure of Uspekhi contains an article by V. I. Tatarskii, which is directly relevant to the problems discussed. In addition, V. I. Tatarskiĭ, like V. L. Ginzburg and L. P. Pitaevskiĭ, regards the standard expression for Nyquist's quantum formula to be correct.

We believe that the three indicated articles taken together elucidate quite fully the questions under discussion and will enable the readers to draw their own conclusions. The Editorial Board does not propose to have these questions discussed further in Uspekhi.

1